Message

From: Devon Phelan [dphelan@terratherm.com]
Sent: 2/19/2015 6:46:04 PM
To: Davis, Eva [Davis.Eva@epa.gov]
CC: d'Almeida, Carolyn K. [dAlmeida.Carolyn@epa.gov]; Wayne Miller [Miller.Wayne@azdeq.gov]; Smallbeck, Donald R. [donald.smallbeck@amecfw.com]; JERRARD, CATHERINE V GS-13 USAF HAF AFCEC/CIBW (catherine.jerrard@us.af.mil) [catherine.jerrard@us.af.mil]; (Geoffrey.Watkin@cn-bus.com) (Geoffrey.Watkin@cn-bus.com) [Geoffrey.Watkin@cn-bus.com]; Gorm Heron [gheron@terratherm.com]; Steffen Griepke [sgriepke@terratherm.com]; Pearson, Stuart C. (stuart.pearson@amecfw.com) [stuart.pearson@amecfw.com]
Subject: RE: Williams ST-12

Eva,
Please see our responses (in blue) below to your questions. Please let us know if there is any additional information that we can provide.
Best regards,
Devon

Devon Phelan
Project Manager
151 Suffolk Lane
Gardner, MA 01440
T: (978) 730-1255
M: (978) 895-8782
F: (978) 632-3422

From: Davis, Eva [mailto:Davis.Eva@epa.gov]
Sent: Friday, February 13, 2015 10:13 AM
To: Devon Phelan; Gorm Heron; Steffen Griepke
Cc: d'Almeida, Carolyn K.; Wayne Miller; Smallbeck, Donald R.
Subject: Williams ST-12

TerraTherm –

Looking for some clarification on some things –

What is meant by the statement on page 11 of the latest progress report that states that temperatures in some TMPs are not consistent, and the data for these wells was interpolated?

The temperatures reported from the automatic monitoring system appear to be suspect for the monitoring points specifically mentioned in the weekly reports. Please see specific details below.

TMP 6
TMP 6 shows steam temperatures up to the upper part of the UWBZ. Most likely correct, since an UWBZ injection well is located ~40 ft from the TMP (UWBZ14). The extraction temperatures in all nearby CZ extraction wells are all ambient. TMP 6 will be manually profiled to verify the automatically reported readings.

TMP 9
The temperature profile at TMP 9 began to report elevated temperatures all the way to the upper sensor located 100 ft bgs approximately two weeks ago. The increase in temperatures at the eight upper temperature monitoring points happened virtually overnight. As this is extremely unlikely, we believe that the data are incorrect. TMP 9 will be manually profiled to verify the reported readings.

TMP 13
Temperature profile reports steam temperatures for almost the entire vertical profile. However, all surrounding extraction wells in the CZ (CZ15, CZ17, CZ18 and CZ19) show ambient temperatures (with the maximum recorded extraction well temperature [as recorded on Sunday 2/15] being 73.1 F). Due to the observed extraction well temperatures, we believe that the automatically reported readings are unlikely to be correct. This TMP has reported questionable temperature data in the past as well (sensors have reached the boiling point and then cooled down again). This TMP will be manually profiled to verify the reported readings.

TMP 7
Temperatures reported at the bottom of the TMP fluctuate and show values close to freezing. This TMP will be manually profiled to verify the reported readings.

TMP 17
The bottom sensors fluctuate and report temperatures above 500 C. This TMP will be manually profiled to verify the reported readings.

The temperatures for the TMPs listed above have been adjusted in the Weekly Operational Report based on an interpolated temperature reading (either based on nearby temperatures or based on the last known good data point from the TMP). The field crew is currently profiling the TMPs with an Inconel thermocouple and handheld reader.

The last bullet on page 10 states that steam injection around TMP10 was decreased because of temperature increases in this perimeter TMP. Perimeter TMP 1 also shows a significant temperature increase – will injection around this well be decreased?

TMP 1 is located in the middle of the CZ and UWBZ zones (145 to 195 ft bgs). Currently we are injecting steam in the UWBZ injection wells UWBZ12, UWBZ09 and UWBZ25 surrounding TMP 1. TMP 1 shows heat up in the UWBZ from 175 ft bgs and down, which is what we want to see.

Table 3 indicates that despite the large amount of LANPL accumulating in W37, the well is not being bailed. Is that correct? Is the 70 ft of LNAPL shown in that well correct?

The 70 ft of LNAPL in the well is correct. Amec Foster Wheeler is removing LNAPL from perimeter wells when the observed thickness is 1 foot or greater. Prior to the 30 January 2015 water level monitoring event, LNAPL has been removed from W37 by bailing. A pneumatic pump was installed in W37 on 10 February 2015 and the product was removed from the well. This will be reflected in the next weekly report. We will continue to monitor LNAPL in this well regularly and remove LNAPL accumulations.